cis1.5-spring2007-sklar, lab V, part 1

instructions

- This is the first part of the lab/homework assignment for unit V.

- The entire assignment will be worth 9 points.

- The first part is worth 6 points and will be distributed and worked on in class on Wednesday April 25.

- The second part is worth 3 points and will be distributed and worked on in class on Wednesday May 2.

- **Both parts together are due on Monday May 7** and must be submitted by email (as below).

- **Follow these emailing instructions:**

  1. Create a mail message addressed to *sklar@sci.brooklyn.cuny.edu* with the subject line **cis1.5 hw5**.

  2. Attach ONLY the **.cpp** files for each part, as outlined below.
     DO NOT ATTACH THE **.cbp** (CodeBlocks Project) files!

  3. Failure to follow these instructions will result in points being taken away from your grade. The number of points will be in proportion to the extent to which you did not follow instructions... (which can make it a lot harder for me to grade your work — grrrr!)

two-dimensional arrays.

For this assignment, you will write a program that generates a two-dimensional array of characters and uses that array to implement a two-player tic-tac-toe game. You can make your own software design decisions about whether you want to write separate functions to do each step of if you want to do all the steps inside the main().

Make sure you refer to the examples we discussed in class on Monday April 23!

Name your program: **ttt.cpp** and submit ONLY this file.

1. Define a two-dimensional 3×3 array of characters. *(0.5 points)*

2. Initialize values in the array to dots (the "." character). *(1 point)*

3. Display on the screen the values stored in the array, like this: *(0.5 points)*

         . . .
         . . .
         . . .

4. Display on the screen the values stored in the array, but also include extra characters so that the array looks like a tic-tac-toe board, like this: *(1 point)*

```
.|.|.
-+-+-
.|.|.
-+-+-
.|.|.
```

5. Now turn your program into a 2-player tic-tac-toe game. Pretend that each square is numbered 0 through 8, like this:

```
0|1|2
-+-+-
3|4|5
-+-+-
6|7|8
```

The user who goes first will be "X". The user who goes second will be "O". Create a loop that asks the users, in turn, to enter a number (0 through 8) and then "mark" the array with the user's character. So if you define your array like this:

```
char grid[3][3];
```

and the first user enters 4, then you would set

```
grid[1][1] = 'X';
```

(1 point)

6. When each user enters a number, make sure that the spot in the grid hasn't already been marked. *(1 point)*
   Hint: check if the grid position is set to '.' or not.

7. After each user's mark has been entered in the grid, check to see if the user has won. *(1 point)*
   Hint: check for three in a row across each row, down each column and the two diagonals.

Compile, build and run your program to make sure it works as you expect it to.